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ADJECTIVES OF COLOR IN INDIAN LANGUAGES.

BY ALBERT S. GATSCHET.

SCIENTIFIC inquiry into the cause and frequency of partial and total color-blindness among civilized nations has prompted some naturalists to extend their researches on this deficiency and on the sense of color (the faculty of color perception) over the rude populations inhabiting foreign lands. Inquiries of this order may be considerably helped by publishing all the terms referring to colors found among Asiatic, African, American and Polynesian nations and tribes, and they have been advanced already through careful comparisons of the color adjectives in use among the ancient Greeks and Romans with those of modern European languages.

Indians possess a large number of color adjectives, and the great tendency of their languages to specialize every object observed easily accounts for this. But it often requires a long familiarity with individuals of a tribe to obtain a series of color names approaching to completeness; some of these names are seldom used and therefore not readily remembered even by the most intelligent natives. I therefore resorted to the expedient of composing a scale of colored paper slips insensibly blending into each other; this series was arranged in several groups—gray, blue, green, yellow, red, brown, the end colors being white and black. To prevent confusion by presenting too many color-shades pasted on the same card-board, I have restricted the number of slips to twenty, and this seemed to be sufficient for the purpose. Simultaneously I inquired for the color-shade of certain objects unalterable in their color, as bark of cinnamon, ripe

strawberries, cherries, certain flowers, the yolk of egg, the rainbow and others.

The color series found in Indian languages and in the classic tongues of the ancients differ from ours chiefly by their great lack of *artificial* terms, though even there they are not entirely wanting. The curious and very frequent coincidence of green and yellow, and of blue and green will be considered below.

All Indian terms mentioned in this article are written by means of a scientific alphabet based on European Continental pronunciation.

Of no Indian language have I obtained a more complete color series than of the *Klamath language* of South-western Oregon, spoken by the Modoc and Klamath Lake (or É-ukshikni) Indians. I present this to students as a fair specimen of the idea of color prevailing among *such* Indian tribes which have but *recently* emerged from the nomadic and hunter state.

No abstract noun exists corresponding to our terms *color*, *color-shade* or *hue*. But there is a word for the substance used in the dyeing process, which also means dot, stain: shnéluash. It is the verbal noun of shnélua, to stain, to dye, to color, a verb which forms the participle shnéluatko, colored, dyed, and the substantive shneluō'tkish, dye-stuff, coloring matter. Shnélua is etymologically connected with shnélya, to burn through something, the radix being nūta, to burn (v. intr.). Other terms referring to colors and colored articles are: hushkalzanátko, of diversified colors; uyókatko, striped, streaked; shankákash, collar, beads or neckwear of various colors. Three different terms exist for *paint* put on face, arms or body.

For a full comprehension of the terms given below, it is necessary to remember that all the *real* adjectives of the Klamath language, descriptive of surface-quality and color, terminate in -li, and are formed by iterative reduplication, viz: by redoubling of the entire radix without vocalic change. The suffix -ptchi, -tchi means *alike to*, *similar*, *resembling*; it forms adjectives from substantives, mostly of a concrete, material signification. The suffix -tko is the sign of a participle, though the verbs, from which participles and verbal adjectives in -tko are derived, have sometimes become obsolete.

No distinction is made between artificial and natural *white*; both are pálpali, pǎ'lpáli, derived from pála, to dry up, to be exsic-

cated. *Gray* is päkpä'kli, a thematic variation from pälpäli, and related to the verb pä'ktgî, "the morning dawns," and to pä'ka, a kind of blanket. Various shades of *gray* are distinguished by these Indians, as lúashptchi, gray as fog (lúash, fog), kâilaptchi, gray as earth, of earthy hue (kâila, ground, dirt, mud); skédshatko, gray, said of rocks, horses, etc.; spúgatko, gray-colored.

The common term for *blue* is mâtchmä'tchli, metsmétsli; this is a dark blue, for obsidian arrow-heads are called by this adjective, and it also corresponds to our *purple* and *violet-colored*. Bluish-gray is mäkämä'kli, and this word we find also in the generic term for all water birds, ducks, etc.—mä'mäkli. A certain shade between blue and purple, applied to a sort of blanket, is tchxe-utchxé-uptchi, a nuance derived from the color of the bluebird, tchxe-utchxé-ush. Another shade of blue is called after a certain kind of beads, yámnashptchi (yámnash, i-ámnash, neckwear) and it is said also of a blue fire-flame.

The common Klamath term for *green* is kākā'kli, suggestive of the light or grassy green. Another green is tolalúptchi, green like the tólalui-blanket, which is manufactured from the tólzash-grass.

The light and golden *yellow* is again kākā'kli. This adjective combines the meanings of light-green and light-yellow, because it stands for the color of any grass, weed or plant, and though the plant passes from the green of spring time and summer into the faded yellow of autumn, the color-name is not changed. But there is another term for the color of the dry leaves in the fall, spálpptchi, derived from pála to become dry, spál, yellow earthy paint for the face. The light yellow of metallic gold and the dusky hue of copper are also called kākā'kli, but the *brown* shade of cinnamon is ka-uká-uli, the light-sorrel of horses and the shade seen on pine-burs. A shade darker than this cinnamon hue is tchuitchúili, *buff* or *dark sorrel*. Tchuitchiga means "to be at red or white heat," and tchuitchiks is "strawberry," a fruit called so from its ruddy color.

All the different shades of *red*, as scarlet, incarnate, crimson, carmine and vermilion, are comprehended in the adjective taktákli, while *blonde* (hair) is mákmakli (lák).

The generic term for absence of light is pushpúshli, *black*, which applies also to objects of nature, to complexion, etc. Dim, obscured, dusky-colored is tiptípli; dark-colored, limlímlí, the

latter applying also to complexion of the human skin, while both originally referred to the dark hue of clouds. When speaking of night or evening, they use the term *tch'múka*, "it is dark, obscure."

That certain radicals undergo a slight vocalic or consonantic gradation in many of these color-names to indicate diversity of shade, is obvious. Such changes we observe in *metsmétsli*, *mäkmä'kli*, *mákmakli*; in *pä'lpäli*, *pä'kpäkli*; in *käkä'kli* and *ka-uká-uli*.

The idiom of the *Nez-Percés* is spoken by the populous Indian tribe of this name which inhabits the northern part of Idaho Territory. This language was adopted during the course of this century by the Cayuse tribe, on Columbia river, and belongs to the linguistic family of the so called Sahaptin, a Selish term of unknown signification. The other dialects belonging to this family are those of the Warm Springs, Walawála and Yumatilla, in Oregon, the Yákima, Klikatat and Palús, in Washington Territory.

In the *Nez-Percé*, as well as in the Klamath, the true adjectives of color are formed by reduplication of the monosyllabic radix, in the *Nez-Percé*, in some instances, even by redoublement of a dissyllabic root.

The term for *white* is also that for clear, transparent (said of *water*) *χáíχaiχ*, while light-gray, light-cream color is *púχpuz*, or *páχpax*. A somewhat darker *gray*, or darker cream, drab or light-yellow is *ka-uχká-uχ*, also pronounced *kā-uχkā'-uχ*, *ka-uká-u*, and used for the metallic shine of silver.

The *blue* shades are all rendered by *yúshyush*, *yúsyus*, the light or sky-blue being *mä'χkuts yúshyush* (*mä'χkuts*, *light, clear*); the deep-blue, *páyu yúshyush*. In the same manner are the different shades of *green*, *tsíχtsiχ*, distinguished from each other, *mä'χkuts tsíχtsiχ* being bluish-green or pale-greenish. *Tsíχtsiχ*, for itself, means the green color of grass, and can stand for *grass*.

Another light-yellow, *drab* or cream color is *shélú-shēlu wákush* (*wákush* means *resembling, alike to*), a darker shade of it, *páyu shélúshēlu*; *dun*, as said of horses, is *pä'tkuiki*, a lighter *dun*, between the foregoing and *kā-uχká'-uχ*, is *tako-wákush*. *Dun-grayish*, or mouse-colored, is *lakólkoli*, while *mógsmogs*, *máχsmáχs* is *auburn, sorrel*, and may be said of the yolk of egg, of the brown bear, of blonde hair. The name of the Indian who lately accompanied Chief Joseph on his trip from the Indian Territory to the East, is *Tchútli móksmoks*, "Yellow Bow."

Lilac is expressed by kúshka mitip, "similar to the mitip berry." This is a berry of lilac color, which grows in a corolla or sort of grape. *Brown*, rusty-brown, deep-brown is shukui-shúkui; *red*, reddish-brown, ilpíl, and this term also serves to express the color of the red cherry, the strawberry and the centi-foil rose. *Dark-brown* is páyu ilpíl, and *black*, timúztimuz, when said of black cherries, the black bear, the complexion of the negro, but hispétse, when used of the darkness of night.

The Indians of this race do not distinguish more than three colors in the rainbow, máxsmáx, or *yellow*, ílpíl, or *red*, and yúshyush, or *blue*.

The *Kalapúya* race of Indians are the primordial inhabitants of the Willámet valley of North-western Oregon, and within the historical epoch were the masters of about three-quarters of this vast and fertile domain, the remainder being held by the intruding Moláles. They are subdivided into the Atfálati, Yámhill, Lukamáyuk and the Kalapúya proper on the western, the Ahántchuyuk and Sántiam on the eastern side of Willámet river, while the Yónkalla or Ayankē'ld lived on some creeks forming tributaries to Umpqua river. With the exception of the Yónkalla their dialects differ but little, and what is given below is taken from the Atfálati (Tuálati, Wápatu lake) dialect. For more than twenty years hence the Kalapúya tribes have lived in common on Grande Ronde reservation, Yamhill and Polk counties, Oregon.

In this language adjectives are always connected with some pronominal or predicative prefix, which I have retrenched in these quotations.

White is mó-u; *gray*, plótim; *blue*, pé-i ánkaf pawé-u; *purple*, túlělu; *green*, tónktěxo.

Yellow, pé-i ántk pawé-u; *sorrel*, líblo, a term borrowed from Chinook jargon; *roan-colored*, sánděli; *brown*, pû'dshnank túlělu, "not quite purple;" *red*, tchál, tchěllim.

Of metallic or golden shine or color, wěltchiäm; *multicolored*, of diversified colors, yä'mtchei; *black*, móyim.

The real meaning of these names could not be disclosed, since the intricate phonetics of this linguistic family render etymological inquiries singularly difficult. We cannot draw any other inference from this list, as it stands now, but that the colors seem as well specified as in English, and that only blue and yellow show close resemblance or identity in their names.

The *Michópdo* Indians of the Maidu race of Northern California, east of Sacramento river, live in a small settlement on the outskirts of the town of Chico. They call themselves Otakímma, because they dwell on the banks of Ótakim shéwi, their name for Chico creek, a small tributary of Sacramento river. Their dialect differs but little from that of the Eskenímma, or Indians on Butte creek, seven miles south of Chico, near Durham town.

The adjectives composing their list of color names begin in e- and end in -i, and the majority is trisyllabic:

white, ékoko, said of natural and artificial white.

gray, épupi; gray beads, épupi gúya.

blue, époti, sky-blue, purple and blue with a yellowish tinge;
épotim pápaga, the yolk of egg.

green, ébali; green beads, ébali gúya.

yellow, edsishi, edsissi: brown, roan, dark-sorrel, buff, of metallic shine, edshishim peso, gold, gold dollar, lit. "yellow dollar."

color of blue-tailed deer, esiwiti; blue-tailed deer, esiwitim búku.

color of black-tailed deer, émuli; black-tailed deer, émulim búku.

black, ekíli; also dusky, dark complexioned.

red, épapi; said of flowers, ants, beads, etc.

striped in colors, etü'düti; animals, etc.

dark, dusky, káisiki; said of night.

light, clear, yokáki; said of daylight.

In this list we perceive that the term for blue gradually passes into that of yellow, and that of yellow into brown.

Like other Indians the *Dakota* race possesses a very complete scale of color names in its sonorous idioms. The dictionary of Rev. Stephen R. Riggs has furnished the terms of the subdialect of the Santee-Sioux, and the language of the other Sioux tribes differs but very little from it. I have rendered Riggs' pointed h by *χ*, and the nasal n, which is heard in the French *bon*, *loin*, *reins* by ng. All the principal color names possess a reduplicated form to mark intensity, and form denominative verbs.

No abstract term for our word *color* exists, though there is one for *to paint*, owa, and others for *dyeing* and *painting* in any of the principal colors.

White is rendered by ska, to whiten by skaya, while sang means whitish, yellowish, brown, and ska also possesses the meaning of clear, transparent. The terms for *gray* designate a

mixture of black upon a white ground, or black mixed with white, as is visible in the skin of the badger, *χα*, *οχα*, *οζακα*; *χota* means not only gray but also brown, like *sang* (*sangyang*, to make brown or whitish). *Brown* is also expressed by *gi*, when it is a dark gray or rusty-looking brown; its reduplicated form, *gigi*, meaning *rust* and *brown, rusty*; *gitká*, brownish; *gitkádang*, a little brownish; *gitkátka*, reddish, brownish, yellowish. The *g* in all these words is a deep sonant guttural.

To, reduplicated *toto*, is *blue* and *green*, and all the intermediate shades; to color, dye, blue or green, *tóya*; blue and green beads, *totódang*. Purple, grape-colored is *stang*; purple, *stangka*; *ha stáng*, dark complexioned (*ha* meaning *skin*); *shástang*, dark red, literally "red-purple."

Yellow is *zi*; to dye or color yellow, *zíya*; the reddish-gray squirrel, *zitchá*. *Light red* is distinguished in this color by a separate term, *sha*, from *dark red* or scarlet, crimson; *duta*, which can also be rendered by *sha xíngtcha*, or by deep, intensive red, *shashá*; to dye red is *sháya*, *shasháya*, and vermilion color or red paint is *washé-sha*; *wasé* being "red earth."

Dark is *tpaza*; darkness, to be dark, *okpaza*, *otpaza*. *Black* is *sápa*; deep black, *sapsápa*; to blacken, *samyá*; dark or blackish, *samyáhan*.

The words for whitish, red and black, *sang*, *sha*, *sapa*, seem to have been formed from the same radix, and this may be said also of the terms for white and black in the *Atfalati-Kalapúya*.

The *Sháwano* or *Shawnee* tribe forms a branch of the widespread *Algónkin* race of Eastern Indians, which is so intimately connected with the early history of the Colonies of North America. As their name indicates, they once belonged to the southernmost tribes of that family, and are now settled to the number of about seven hundred individuals in the north-eastern portion of the Indian Territory.

They have special terms for each kind of *body paint*, f. i., *hú'lamu*, red paint, which was the war paint, but no abstract term for *color*. I paint myself is *netasathú*, and the paint, *hat'hika*.

White is *waxkanagiá*; *transparent*, *sápune*. *Gray* is *wipegua*, and this may be modified, like any other color, by the adverbs *pkúni wibegua*, *dark gray*, and *hálawe wipegua*, *light gray*. For *blue* and *green* only one term, *skípagia*, exists, this being used, for instance, of the color of the sky. *Yellow* is *hutháwa*; *red*

mskuáwi; *bronze colored* hálawi mskuáwi (lit. "light red"); *brown*, pkúni mskuáwi, or dark red, while the red cockscomb is mskuá pelué. No special term exists for *buff* color. *Black* is mkatéwa, and *opaque* is circumscribed by "you cannot see through." Objects *reflecting* sunlight are called waséte; multicolored, tsági yelatégi, and striped in colors, lalatasáte, when the stripes run in a vertical direction.

The *Creek* language is one of the dialects of the Maskōki linguistic family, once the form of speech dominant in the territories of the Gulf States. The languages forming this stock have, in course of time, differentiated so much among themselves that they have become incomprehensible to each other. The principal dialects, as far as known to us, are Chá'hta with Chikasa; Creek (upper and lower) with Seminole; Natchez; Hitchiti; Apalache. Nothing certain is known concerning the Alibámu dialect, which is still spoken in one of the south-eastern counties of Texas. Besides a few Indians remaining in Texas and in the Everglades of Florida, all the natives speaking Maskōki dialects are now settled in the Indian Territory.

The phonetic character of all these idioms pleasantly affects the ear accustomed to European languages. All of them, the Creek not excepted, possess the lingual s, which could be rendered by *thl*, a group of sounds approaching closely to its real articulation.

The term for *white* and *clear* is hátgi, and since every adjective of color forms an attributive verb, *he is white* is hátgis. From hátgi is derived supák'hatgi, *gray* and *roan*, literally, "mixed in with white."

Blue is holáti, oxoláti, which may be said of the sky, of water, of distant mountains; wíwat hulátis, the water is blue. *Green* is lání, and when said of plants it means "not in a dry state;" pahilánoma, grass-green; páhit lánis, however, means as well, "the grass is green," as "the grass is faded, yellow;" lání also means *bile*.

The term for *red*, tcháti, also means "blood," and forms the derivate oksásadi, *purple* (and *sorrel* when applied to horses).

Hásti, *black*, forms the derivate okulóshti, *brown*; *dark*, when used for the darkness of night, is yēmúshki.

Instead of inventing new terms for metals recently imported, as a few tribes have done, the Creeks will call gold coin, "yellow

iron beads," tchātu xónap láni; silver coin, "white iron beads," tchātu xónap hátgi; sulphur or brimstone is to them, "yellow gunpowder," tēhótop láni; copper, brass and bronze, "yellow iron," tchātu láni; alum, "sour iron," tchātu kamúksi.

In the present article I have rejected all information that was not circumstantial and entirely reliable. In six languages I have relied on oral information gathered by myself, while for the Santee-Dakota, the words mentioned were extracted from Riggs' Dictionary. To draw *general* conclusions upon the subject of color nomenclature and the Indian perception of color from the few instances given here would certainly be precocious. Indian tribes show considerable difference from each other in habits, customs, intellectual power, not less than in their bodily qualities and in language. Hence very few general ethnological truths can be uttered about them that will really apply to them all.

The following *conclusions* are, therefore, intended to apply *only to the seven idioms referred to*:

1. In the lists of colors submitted we find that the Indians in question distinguish as many, if not more *shades* of color, as we do, if we exclude the large number of our artificial color-names, as ultramarine, isabelle, solferino, etc.

2. No generic term for our word *color* exists, and it seems that such a term is too abstract for their conception. But they have terms for coloring matter, dye-stuff, paint, and for our participles "colored," "dyed," "painted" and "tinged."

3. Many of their colors, even the most opposite ones, are derived from one and the same radical syllable. Instances were given under Klamath, Kalapuya, Dakota. The same may be observed when we compare our blank, blue, black and the German bleich (livid, pale); gray and green.

4. In the Indian lists we observe some names of medley or mixed colors, which impress the eye by being not homogeneous. Such is the Klamath mā'kmākli, which is the blue mixed with gray, as observed on wild geese and ducks; tchxe-utchxé-uptchi, the mixed color of the bluejay; and gray, in most of the dialects, means black mixed in with white, or white with black, as observed in the fur of the racoon, gray fox and other wild beasts.

5. In naming some colors Indians follow another principle than we do, in qualifying certain objects of nature by their color and then calling them by the same attribute, even when their color

has been altered.¹ This we distinctly observe in *kākā'kli*, *yellow* and *green* in Klamath, the adjective having been given originally to the color of grass, trees or other plants. The same is observed in the Niskualli language of Washington Territory, in which both colors are called *hókwa*ts, and we may assume that this is the light and not the dark shade of yellow and green.

Most frequently *blue* and *green* are rendered by one and the same term, as in Dakota, Sháwano and in Maya (*yáash*). Other Indian dialects which are reported to have the same name for both colors are the Chókóyem, north of San Francisco bay: *sivita*; the dialect of the Yákimas and Warm Spring Indians of Sahaptin family, *lómēt*, *lā'mt*; the Shásti, *itchumpazé*; the Guarani, *tobi*; and the Muyskas near Bogotá, *chiskuiko*, the latter belonging both to South America. Among the Paí-Uta, the Uta, Pomo, the Wintún and the Tinné-Apaches, the terms for both colors seem to be identical also. Unfortunately we are not acquainted with the etymology of all these terms, unless we would probably be enabled to prove that the real cause of this curious coincidence is another than color-blindness.

Blue and *purple* is called by the same name in Klamath and in the Michópdo dialect of Maidu.

Red and *yellow*, or *yellow* and *brown*, or *brown* and *red* are sometimes expressed by the same term, but *only when yellow* and *blue* are called *differently*. I have never met with a dialect which called black and dark blue, or black and dark green by the same adjective, though this is reported to be the case among the Niskualli, the Ta'hkali of British Columbia, and several other tribes.

6. As I have stated above, Indians often follow principles differing from ours in naming colors. The Klamath language has two terms for green, one when applied to the color of the vegetals (*kakā'kli*), another when applied to garments and dress (*tolalúptchi*). Blue when said of beads is again another word than blue in flowers and blue in garments. Thus may be explained the fact that some investigators have found the adjective *black* attributed to objects of a dark-blue or dark-green color. The Dakotas have three terms for brown, *gi*, *sang* and *zota*, each of them being applied to objects of different classes. Even in

¹ Thus the name applied to the color of a quadruped may remain even when the animal has changed its color through the change of seasons.

English we use different terms when speaking of the darkness of night and the black of a dress; or of the blonde hair and the yellowish-white corresponding color of other objects striking our eye-sight. The occasional existence of more than one term for *one* color for the reason just alluded to is observed in the languages of every portion of the globe. Curiously enough the *red* color is not often diversified into different shades in the languages considered; in Spanish it is *colorado*, "showing color;" this evidently means that red is the color striking our eye with the greatest intensity.

7. Reduplication of the *radix* is very often met with in color names, but the cause of this is not always the same. In Klamath and the Sahaptin dialects it is distribution and repetition, in Dakota it is the idea of intensity that has produced this synthetic feature.

We think the inquiry into the color-sense and that into the color-blindness among the individuals of a people must be kept distinct from each other. It is premature to assume that a whole people can be color-blind, though its color nomenclature may largely differ from ours, but it is by no means improbable that color-blindness is more frequent among hunting and nomadic nations than among individuals of civilized races. This question can be decided by direct experimental observation only, while in the inquiry concerning color-sense, the science of linguistics is entitled to take part in the discussion.

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THE HABITS OF A TARANTULA.

BY MRS. MARY TREAT.

FOR the past year I have been observing a large burrowing spider belonging to the family of *Lycosidæ*. Its habits and probably the creature itself, had entirely escaped the attention of naturalists until recently. Its habitat is in Southern New Jersey. In the grove which surrounds the house where my observations were made, are many burrowing spiders which build open tubes lined with a web of silk, and a projecting rim of sticks and leaves are firmly held together with web to keep the sand and *debris* from falling into the nest.

Last summer (1878), I accidentally found a covered tube, perfectly concealed, which aroused my curiosity sufficiently to keep